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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,047	10/28/2003	Norio Kimura	2003-1482	3900

513 7590 05/18/2005

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WASHINGTON, DC 20006-1021

EXAMINER

ELEY, TIMOTHY V

ART UNIT	PAPER NUMBER
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3724

DATE MAILED: 05/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

C

Office Action Summary

Application No.

10/694,047

Applicant(s)

KIMURA ET AL.

Examiner

Timothy V Eley

Art Unit

3724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 6, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita et al(6,167,583) in view of Miyashita et al(5,993,639).

- Miyashita et al(6,167,583) discloses a polishing apparatus comprising; a polishing section for polishing a surface of a substrate by holding the substrate and pressing the substrate against a polishing surface(64), the surface of the substrate having a semiconductor device thereon; and a cleaning section(65) for cleaning at least a polishing surface of the substrate while supplying electrolyzed water to the substrate. Whether or not a metal-oxide film is formed on the polished surface of the substrate by the electrolyzed water would depend upon the exact type of structure of the semiconductor device. However, the Miyashita et al apparatus is capable of performing this feat. See figures 1, 2, and 6; column 1, lines 6-21, column 7, lines 23-44.
- Miyashita et al(6,167,583) does not disclose an electrolyzed water generator for generating the electrolyzed water, a measuring device for monitoring pH or ion concentration of the electrolyzed water, nor a controller for controlling the pH or

Art Unit: 3724

ion concentration of the electrolyzed water generated by the electrolyzed water generator.

- Miyashita et al(5,993,639) discloses a polishing apparatus which includes an electrolyzed water generator for generating electrolyzed water, a measuring device for monitoring pH or ion concentration of the electrolyzed water, and a controller for controlling the pH or ion concentration of the electrolyzed water generated by the electrolyzed water generator, thereby providing electrolyzed water for cleaning a substrate. See specifically the abstract.
- Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Miyashita et al(6,167,583) apparatus by providing an electrolyzed water generator for generating the electrolyzed water, a measuring device for monitoring pH or ion concentration of the electrolyzed water, and a controller for controlling the pH or ion concentration of the electrolyzed water generated by the electrolyzed water generator, thereby providing the appropriate electrolyzed water for cleaning a substrate as taught by Miyashita et al(5,993,639).

3. Claims 1,2,4,5,7-10, and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita et al(6,167,583) in view of Miyashita et al(5,993,639), as applied to claims 6,11, and 12 above, and further in view of Hayashi et al(6,379,230).

Art Unit: 3724

- Miyashita et al(6,167,583) in view of Miyashita et al(5,993,639) is explained above.
- Miyashita et al(6,167,583) as modified does not specifically disclose a top ring for holding the substrate(claim 1), nor another polishing surface for conducting a secondary polishing of the polished surface(claim 7).
- However, Hayashi et al discloses that it is well known in the art to use a top ring for holding a substrate and pressing it against a polishing surface(see figures 2,4 and 5), and at least two polishing surfaces for conducting several polishing steps on a polished surface. See figure 3.
- Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have further modified the Miyashita et al apparatus by using a top ring for holding the substrate against the polishing surface, and providing another polishing surface for conducting a secondary polishing of the polished surface in order to optimize polishing of the semiconductor as taught by Hayashi et al.
- Regarding claim 4, Miyashita et al(6,167,583) disclose a supply device for supplying diluted hydrofluoric acid to the substrate(see column 8, lines 9 3-10).
- Regarding claims 5 and 8, the apparatus is capable of processing a substrate having a copper layer.

Art Unit: 3724

- Regarding claim 8, whether or not a metal-oxide film is formed on the polished surface of the substrate by the electrolyzed water would depend upon the exact type of structure of the semiconductor device. However, the Miyashita et al apparatus is capable of performing this feat.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita et al(6,167,583) in view of Miyashita et al(5,993,639) and Hayashi et al(6,379,230), as applied to claim 1 above, and further in view of Sakurai et al(6,082,373).

- Miyashita et al(6,167,583) in view of Miyashita et al(5,993,639) and Hayashi et al(6,379,230) is explained above.
- Miyashita et al(6,167,583) as modified does not disclose an ultrasonic transducer for applying ultrasonic vibrations to the electrolyzed water before supplying the electrolyzed water to the substrate.
- Sakurai et al disclose that it is well known in the art to apply ultrasonic vibrations to electrolyzed water before supplying the electrolyzed water to a substrate for cleaning the substrate. See column 1, lines 46-48.
- Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have further modified the Miyashita et al(6,167,583) apparatus by providing an ultrasonic transducer for applying ultrasonic vibrations to the electrolyzed water before supplying the

Art Unit: 3724

electrolyzed water to the substrate as taught by Sakurai et al in order to provide more efficient cleaning of the substrate.

Response to Arguments

5. Applicant's arguments with respect to claims 1-16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

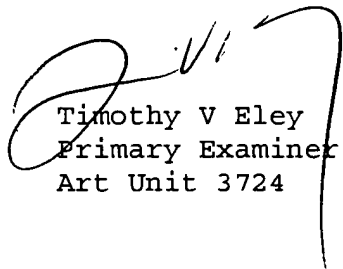
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy V Eley whose telephone number is 571-272-4506. The examiner can normally be reached on M-F.

Art Unit: 3724

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Allan N Shoap can be reached on 571-272-4514. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Timothy V Eley
Primary Examiner
Art Unit 3724

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